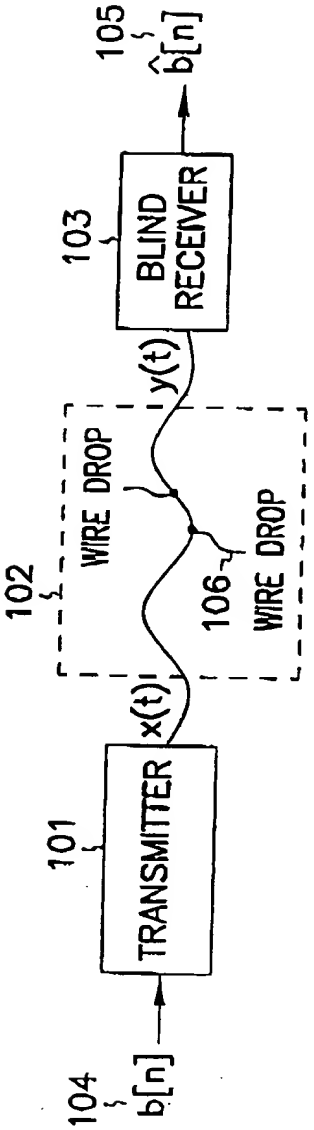
104
b[n]
101
TRANSMITTER
x(t)
102
WIRE DROP
106
WIRE DROP
y(t)
103
BLIND RECEIVER
105
b̂[n]

FIG. 1

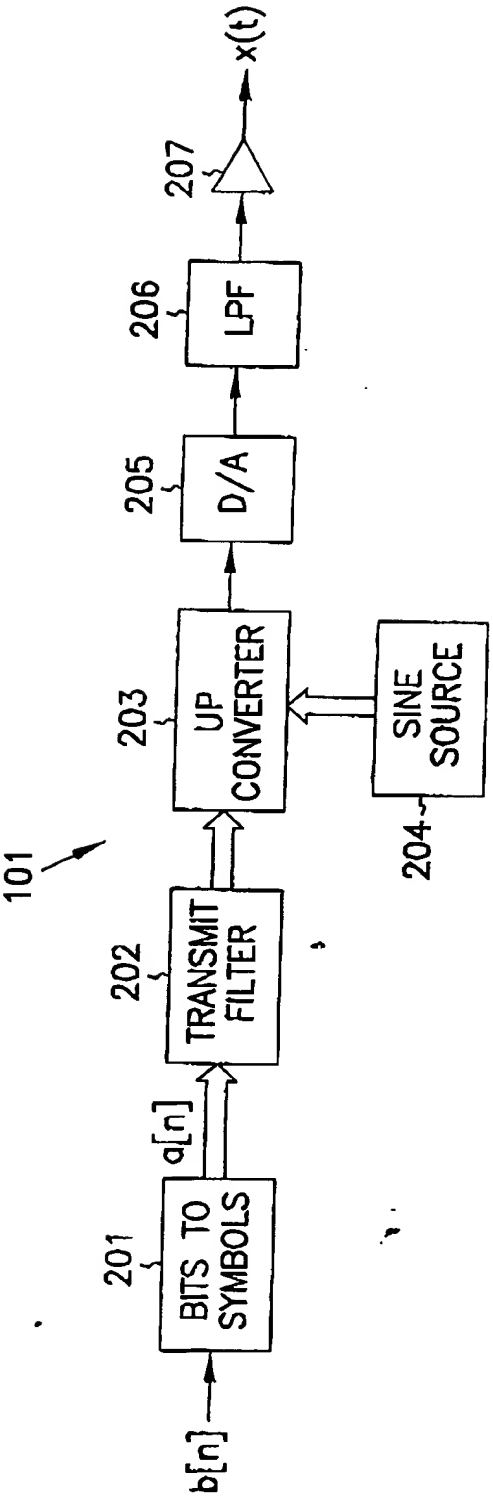
b[n]
201
BITS TO SYMBOLS
a[n]
202
TRANSMIT FILTER
101
203
UP CONVERTER
204
SINE SOURCE
205
D/A
206
LPF
207
x(t)

FIG. 2

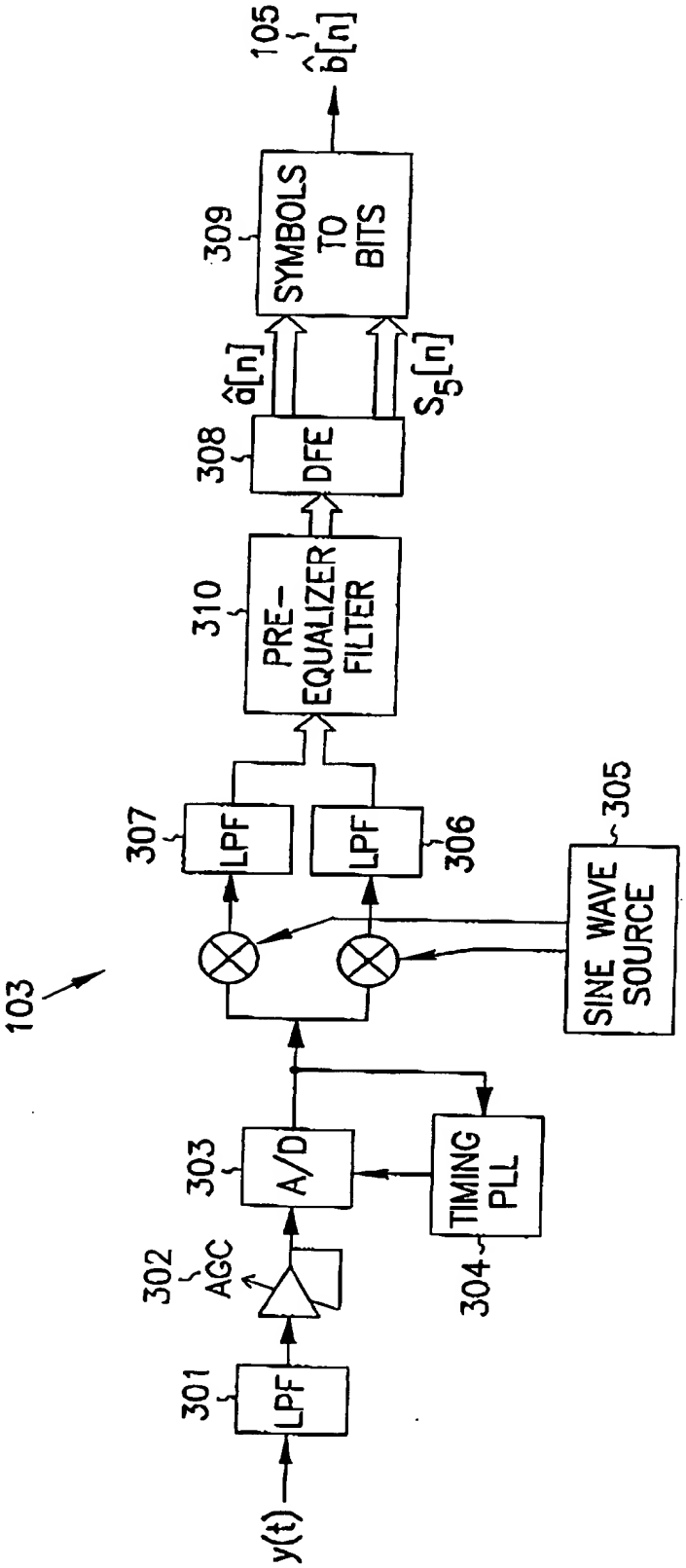
105
$\hat{b}[n]$
309
SYMBOLS TO BITS
$\hat{a}[n]$
$S_5[n]$
308
DFE
310
PRE-EQUALIZER FILTER
307
LPF
306
LPF
305
SINE WAVE SOURCE
103
303
A/D
304
TIMING PLL
302
AGC
301
LPF
y(t)

FIG. 3

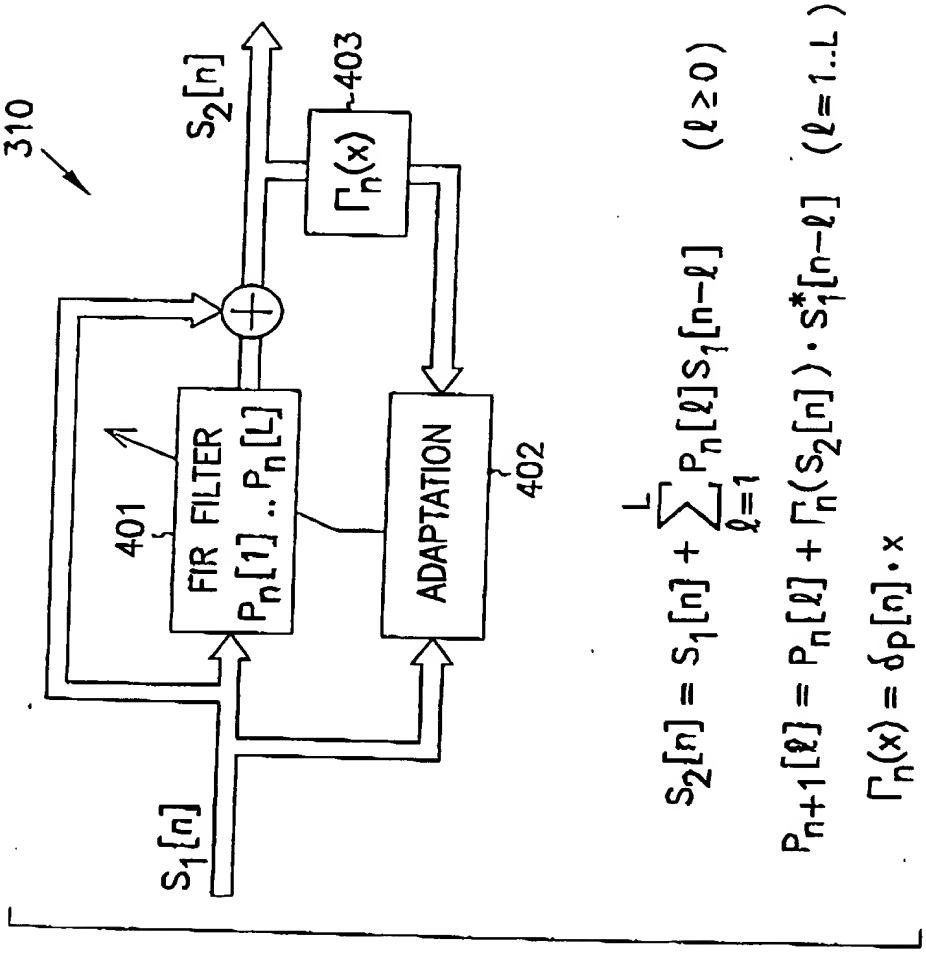
310
$S_2[n]$
403
$\Gamma_n(x)$
401
FIR FILTER
$P_n[1] .. P_n[L]$
ADAPTATION
402
$S_1[n]$
$S_2[n] = S_1[n] + \sum_{l=1}^{L} P_n[l] S_1[n-l]$ $(l \geq 0)$
$P_{n+1}[l] = P_n[l] + \Gamma_n(S_2[n]) \cdot S_1^*[n-l]$ $(l = 1..L)$
$\Gamma_n(x) = \delta p[n] \cdot x$

FIG. 4

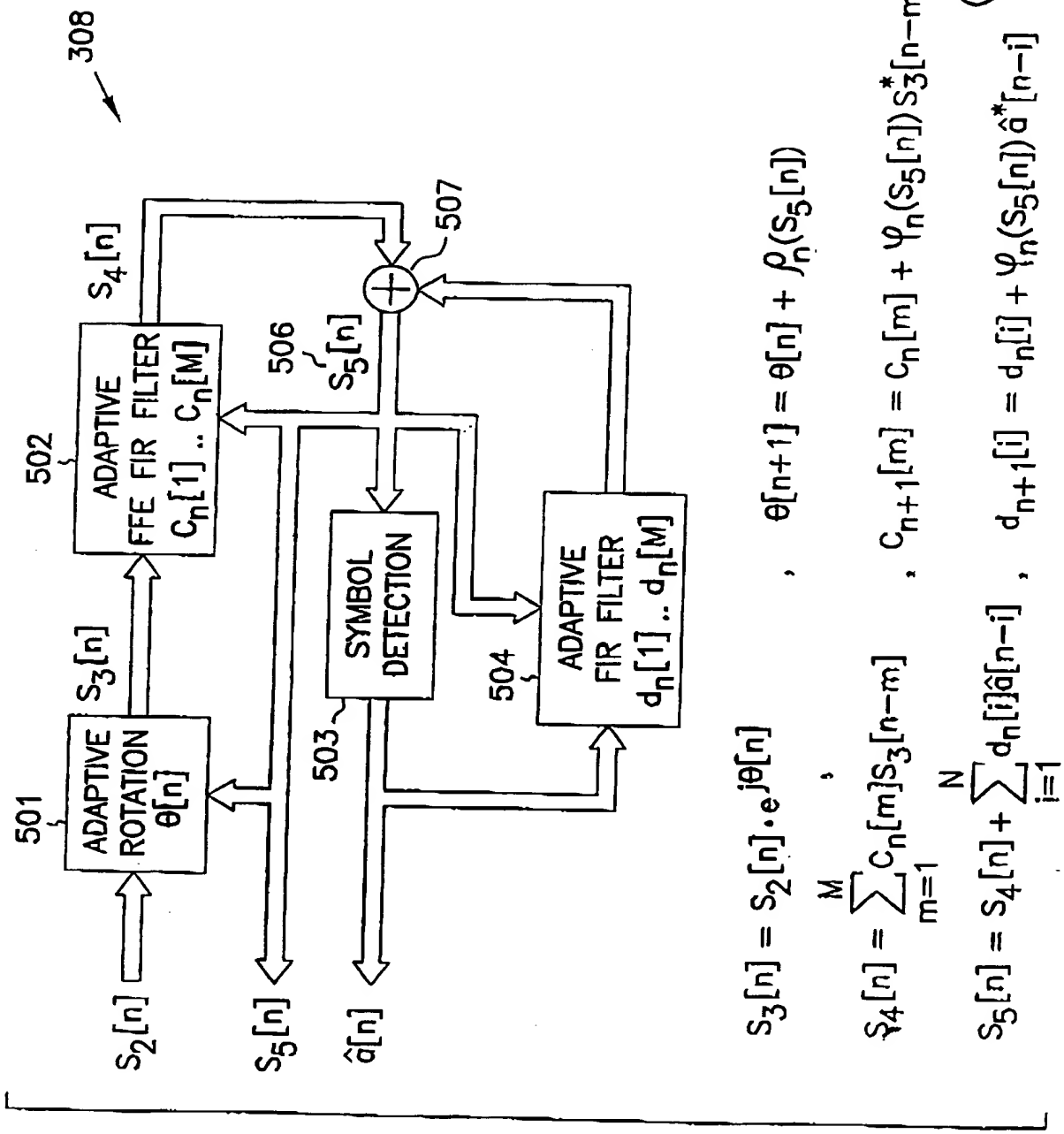
308
501
ADAPTIVE ROTATION θ[n]
502
ADAPTIVE FFE FIR FILTER $C_n[1] .. C_n[M]$
503
SYMBOL DETECTION
504
ADAPTIVE FIR FILTER $d_n[1] .. d_n[M]$
506
507
$S_2[n]$
$S_3[n]$
$S_4[n]$
$S_5[n]$
$\hat{a}[n]$
$S_3[n] = S_2[n] \cdot e^{j\theta[n]}$
$\theta[n+1] = \theta[n] + \rho_n(S_5[n])$
$S_4[n] = \sum_{m=1}^{M} C_n[m] S_3[n-m]$
$C_{n+1}[m] = C_n[m] + \varphi_n(S_5[n]) S_3^*[n-m]$
$S_5[n] = S_4[n] + \sum_{i=1}^{N} d_n[i] \hat{a}[n-i]$
$d_{n+1}[i] = d_n[i] + \varphi_n(S_5[n]) \hat{a}^*[n-i]$
$(M \geq 1,\ N \geq 0)$

FIG. 5